

In re Patent Application of:
KAMENOFF
Serial No. 10/694,635
Filing Date: **October 27, 2003**

REMARKS

Claims 1, 3, 4, and 12-14 remain in this application. Claim 11 has been cancelled. Claims 2, 5-10, and 15-23 have been previously cancelled. Claims 1 and 12 have been amended.

Applicant thanks the Examiner for the detailed study of the application and prior art. Applicant files a Request for Continued Examination and request for one-month extension to have Claim 1 as amended considered, which now includes further recitations of the functions and interconnection of the battery discharge circuit to the heating element, load current sensor and switch, and details of the non-parallel transistors in the switch and temperature sensor function.

Claim 1 as now amended recites the battery discharge circuit operatively connected to the battery. As shown in FIG. 4, the claimed invention is more than a simple battery heating circuit. It is a combination of the battery discharge circuit and the novel and unobvious elements arranged with the heating element and the battery, temperature sensor, switch circuit, comparator circuit, load current sensor, load current comparator and high current comparator and the battery discharge circuit that operate in combination with each other.

As now claimed, the battery discharge circuit is operatively connected to the battery for discharging the battery and also operatively connected to the heating element, load current sensor and switch as shown in FIG. 4. It is operative for locking out the heating element when a battery is not in use and turning off the heating element when a discharge current is high as set forth and taught in the specification. Thus, the battery discharge circuit also works

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in combination with the self-heating battery circuit that includes the battery and other elements as claimed. Also, the temperature sensor does more than determine the temperature, but also senses the temperature when the battery temperature is below a temperature where available capacity is limited, indicative of a predetermined temperature above a minimum specified operating temperature of the battery.

Also, the switch circuit as claimed now recites non-parallel, serially connected transistors as shown in FIG. 4, as compared to the prior art of FIG. 5 in U.S. Patent No. 5,773,955 to Hall, as used by the Examiner, which shows a combination of both parallel and serially connected transistors.

The low current comparator and high current comparator each have inputs that are operatively connected to the load current sensor to determine its voltage drop as shown in FIG. 4, where the non-inverting and inverting inputs are connected to either side of the load current sensor for both the low current sensor and high current sensor formed as operational amplifiers. U.S. Patent No. 5,834,131 to Lutz discloses two switches 30, 36 connected to a current sensor 40, but nowhere suggests the structural combination and function as claimed.

Nowhere does the prior art suggest the battery discharge circuit in combination with the circuits as claimed, and more importantly, the structural and functional details of the discharge circuit connected to the heating element, load current sensor and switch as claimed. At most, the cited U.S. Patent Publication No. 2001/0004198 to Matsuyama discloses a charge/discharge circuit 7, which uses a controller as an

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integrated circuit 10 in combination with a number of transistors to supply electric energy from a solar panel to a connector and supply electric energy from the battery that is necessary for operation. The charge/discharge circuit is operative when too much power is being charged from the solar panel and allows any necessary discharge. This is opposite from the claimed invention in which the battery discharge circuit is operative for discharging the battery as noted in the Background of the Invention section of the application for battery disposal and also for locking out a heating element when the battery is not in use, and turning off the heating element when a discharge current is high.

U.S. Patent No. 5,710,507 to Rosenbluth et al. (hereinafter "Rosenbluth") may disclose a temperature transducer for the sensed temperature of a reserve battery, but its operation is much different and allows a reserve battery to become operative at predetermined times.

Thus, the combination of the prior art would suggest the structure of Lutz with the microcontroller for a self-warming battery that is operative with a solar panel and some type of charge/discharge current that is operative when the solar panel is overactive such that it charges the battery at excessive rates, and operative with some form of temperature sensor that uses a combination of parallel/series-connected transistors for a switch. When the solar panel overcharges, the switch operates in conjunction with the sensors to permit discharging. That combination is much different and suggests opposite from the claimed invention in which the battery discharge circuit can be operative for discharging a "spent" battery and the other structure and function as claimed.

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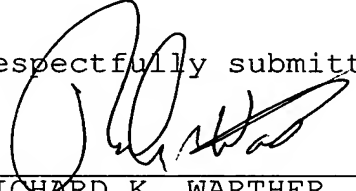
U.S. Patent No. 5,939,865 to McGrath et al.
discloses a rechargeable battery for an overcharge protection
circuit, but nowhere suggests the claimed invention as set
forth in this Amendment.

U.S. Patent No. 5,853,908 to Okutoh may disclose the
use of an extra cell, but nowhere does it suggest the
combination as claimed. At most, Okutoh suggests some type of
protective device using an extra cell.

Applicant contends that the present case is in
condition for allowance and respectfully requests that the
Examiner issue a Notice of Allowance and Issue Fee Due.

If the Examiner has any questions or suggestions for
placing this case in condition for allowance, the undersigned
attorney would appreciate a telephone call.

Respectfully submitted,



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